SIEC Briefing Paper on SIEC and the FCC

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Description

The State Interoperability Executive Committee, as outlined in SHB 1271, has very specific roles and responsibilities in this State. The purpose of this briefing paper is to give members of this Committee additional information about the roles and responsibilities of SIEC's from the Federal Communications Commission perspective.

Recommendations to the Committee

This is a report only designed to advise members of the SIEC of additional responsibilities outlined by the Federal Communications Commission.

Issues

The Public Safety Wireless Network (PSWN) introduced the concept of State Interoperability Executive Committees (SIEC) to this state. The Federal Communications Commission tasked SIECs throughout the United States with managing and administering both interoperability channels and state frequencies specifically within the 700 MHz spectrum. SIECs were in a unique position to know what would be in the best interests for state investments and had a regional overview of requirements for interoperability.

Background

In 1998, the FCC adopted service rules for the 24 MHz of spectrum in the 764-776/794-806 MHz frequency bands (collectively, the 700 MHz band). This spectrum was to be reallocated from television broadcasters at the direction of Congress by December 31, 2006; however, the date became flexible based upon market saturation of high definition television.

Of the 24 MHz of spectrum made available by Congress, 53 percent of this spectrum (12.5 MHz) is designated for general use by local, regional and state public safety agencies. In Washington State this spectrum would be managed by the Regional Planning Committee (of Region 43) chaired by Kevin Kearns of King County. The Vice Chair is Clark Palmer employed by the Washington State Patrol. With this additional spectrum came the responsibility of encouraging a broad participation in the planning and use of this spectrum. In particular the FCC encouraged participation by "Native American tribes."

Each state was encouraged to create a State Interoperability Executive Committee (SIEC) to administer/manage 2.6 MHz of spectrum in the 700 MHz band. If a state did create an SIEC, it could manage on behalf of the state, the spectrum that each state could license for both interoperability and for state use. Governor Locke made application for the 2.6 MHz of spectrum, and in the license application, advised that the SIEC would manage that spectrum for the people of this state.

Each region was required to submit a plan to the FCC advising how they would manage this new spectrum. In Washington State, the SIEC was required to submit a plan to be incorporated into the Region 43 Plan on how we proposed to manage the interoperability and state frequencies. This was been completed as part of the first SIEC.

The National Coordinating Committee (NCC) which was an advisory committee of the FCC (and who has since sunsetted) noted how each state would be in an excellent source to administer

all of the interoperability channels in all of the spectrums. Although the FCC has not adopted this process, it seem as if there is movement in that direction.

Additional information can be found behind this report and at the hyperlinks contained in that document.

700 MHz Public Safety Spectrum: Taken in part from the FCC Web Sight: http://wireless.fcc.gov/publicsafety/700MHz/

In 1998, the FCC adopted service rules for the 24 megahertz of spectrum in the 764-776/794-806 MHz frequency bands (collectively, the 700 MHz band). At the direction of Congress, this spectrum was reallocated from television broadcast services to public safety communications services. It will be available as soon as existing TV stations vacate the spectrum, which is targeted for no later than December 31, 2006. (This date may be extended under particular circumstances set forth in 47 U.S.C. § 309(j)(14)(B) including for those markets where 15 percent or more households do not have access to either DTV-equipped receivers or multi-channel video.)

In January 2001, the FCC adopted technical and operational standards for use of the narrow band portion of this spectrum. The standards are based on recommendations of a federal advisory committee, the Public Safety National Coordination Committee (NCC). The NCC is continuing its work with a special focus on wideband interoperability standards.

Three categories of 700 MHz public safety spectrum are listed below. The key information and characteristics are contained in the question and answer format for each category. You are encouraged to review the rules and decisions related to this Public Safety Docket (WT Docket No. 96-86) which are located under decisions and actions by year

Regional Planning and General Use Spectrum
http://wireless.fcc.gov/publicsafety/700MHz/regional.html

What is it, how much is there, and who will administer it?

A large portion of the 700 MHz public safety spectrum, approximately 53 percent (12.5 MHz), is designated for general use by local, regional and state users. A regional planning process was adopted to govern management of this public safety spectrum. It is a similar process to that used in the 821-824 MHz and 866-869 MHz bands. Regional Planning Committees (RPCs) are allowed maximum flexibility to meet state and local needs, encourage innovative use of the spectrum, and accommodate new and as yet unanticipated developments in technology equipment. They are responsible for creating and managing regional plans.

What are the first steps in Regional Planning?

- **Convene the initial meeting.** The current 800 MHz Regional Planning Committee Chairperson or the appropriate state official is to appoint a local convener who will be responsible for organizing and publicizing the first 700 MHz Regional Planning Committee (RPC) meeting.

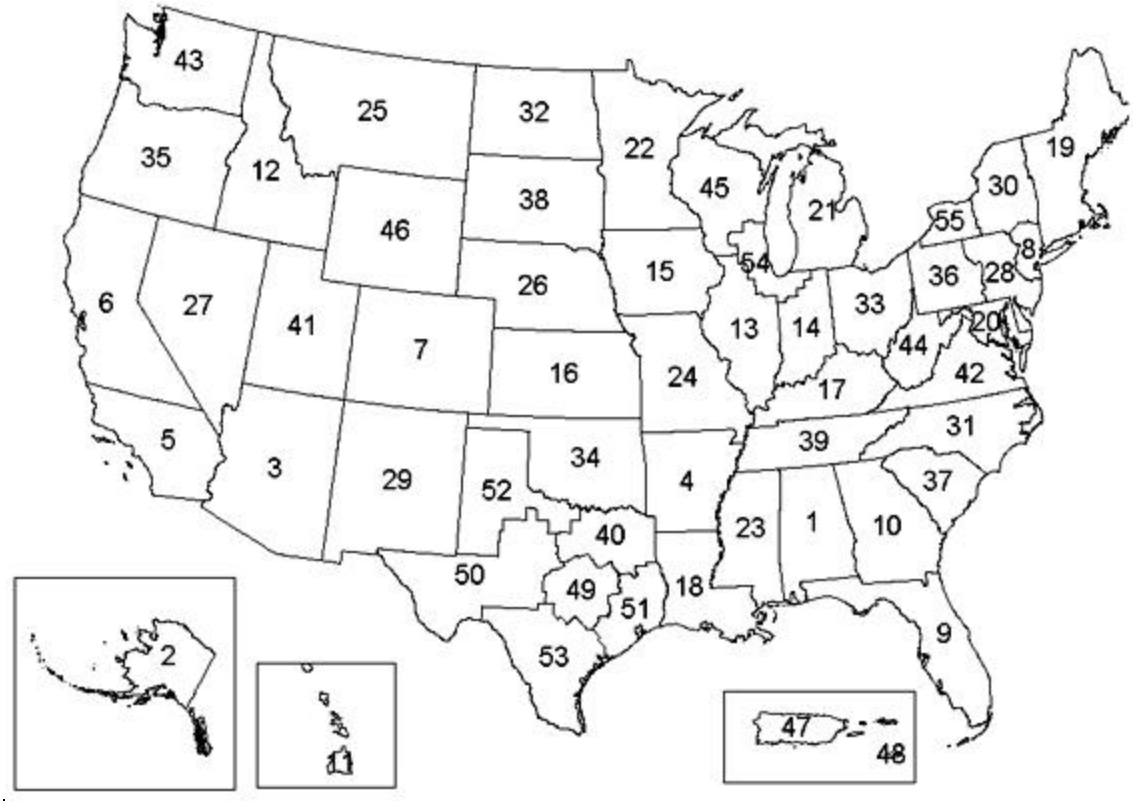
- **Give adequate notice.** You are required to provide a 60-day advance notice of the initial planning meeting. Announce your meeting in print media and on e-mail list serves or web sites. The FCC can place your announcement on public notice.

- **Encourage broad participation.** Planning Committee membership should be representative of all public safety entities. Consider holding meetings in various parts of the region. In particular, the Commission is encouraging the participation of Native American tribes. Officials responsible for National Security and Emergency Preparedness within the region should be notified of the initial planning meeting and invited to

participate. Regional Planning Committee meetings should be open to all members of the public safety community and everyone should have the opportunity to participate in the planning process. ***(Highlight by staff)***

700 MHz Regional Map and Plans

Click on the map or the table below to find additional information for each region.



- ***Washington State is in Region 43 in this process.*** *Chairing the Region-43 Planning Committee is Kevin Kearns of King County Government. Region 43's Vice-Chair is Clark Palmer, Washington State Patrol, the Sectary is Allan Josue, Washington State Emergency Management Division, the Treasurer is Spencer Bahner, Snohomish County Emergency Radio System. Information about the Regional Planning Committee can be found at their Web sight: http://www.region43.org/700.htm (Dennis Hausman, SIEC Staff)*

- ***The relationship with the Region-43 Planning Committee and the*** *SIEC is extraordinary. By working together, both groups are finding ways to use spectrum in a consolidated manner. Additionally, Region-43 allowed a member of state government to attend training on the CAPRAD*

system, to aid in frequency management for this region. Region-43 gave one of their two "free seats" to state government. (Dennis Hausman, SIEC Staff)

What are the Elements for the 700 MHz plans?

- Identification of the document as the regional plan for the defined region with the names, addresses, telephone numbers, and organizational affiliations of the chairpersons and all members of the Regional Planning Committee.
- A summary of the major elements of the plan and an explanation of how all eligible entities within the region were given notice, an opportunity to participate in the planning process and to comment and have those comments reasonably considered.
- A general description of how the spectrum would be allotted among the various eligible users within the region with an explanation of how the requirements of all eligible entities within the region were considered and, to the degree possible, met.
- An explanation as to how needs were assigned priorities in areas where not all eligible entities could receive licenses.
- Evidence of how the plan had been successfully coordinated with adjacent regions.
- A description of how the plan encourages the efficient and effective use of the spectrum; employs system design flexible enough to accommodate improvements in technology, builds systems with sufficient capacity to accommodate the full range of functionalities needed to meet the communications needs of the public safety community of today and tomorrow.
- A description of the planning procedures, both present and future, including, but not limited to, amendment process, meeting announcements and minutes, database maintenance, and dispute resolution.
- A certification that all Regional Planning Committee meetings, including subcommittee or executive committee meetings, were open to the public and the signature of the Regional Planning Committee chairperson.
- The first Washington State Interoperability Executive Committee complied fully with the requirements of the Regional Planning Committee and submitted a frequency plan, etc. for its part in this process. (Dennis Hausman, SIEC Staff)

State License

(http://wireless.fcc.gov/publicsafety/700MHz/state.html)

These are the requirements of SIECs as defined by the Federal Communications Commission (Dennis Hausman, SIEC Staff)

The state license is a geographic area license based on state boundaries, which differs from traditional site-based public safety licensing. State licenses are subject to the general limits that govern geographic licenses including antenna structures and air navigation, international coordination, and environmental requirements including quiet zones.

How much spectrum has been designated?

The Commission designated 2.4 megahertz of spectrum, all narrowband channels for statewide, geographic-area licenses. It designated the same amount of spectrum for all states, regardless of size, and it designated the same ***2.4 megahertz*** of spectrum nationwide.

Who received the State Licenses?

All 50 states, Puerto Rico, U.S. Virgin Islands and the District of Columbia were granted a State License on or before February 1, 2002. *(Governor Locke applied for this spectrum in behalf of the State of Washington, the SIEC is to administer and manage this spectrum.)*

Does the State License have construction conditions?

Yes. Construction and operation requirements were established to ensure timely and efficient use of the spectrum, including the provision of service to rural and remote areas. The initial construction/operation benchmark was set at 5 years; however, because broadcasters are not required to complete relocations until December 31, 2006, the start date for calculating the benchmark is January 1, 2007. The first build-out date is January 1, 2012 and the second build-out date is January 1, 2017.

When can states begin building their systems?

Planning can begin now. States may begin using the state license spectrum when:

- Full power TV or DTV stations vacate the 700 MHz spectrum
- Project 25 Phase 1 equipment is available for purchase
- General operating and technical requirements are met such as:
    1. coordinating transmitting sites near the U.S./Canada and U.S./Mexico border;
    2. compliance with quiet zones, and
    3. registration of antenna structures with the FAA and FCC as required under Part 17 of the Commission's Rules.

For further information about the State license, see the Commission's Rules, 47 C.F.R. 90.529 and Public Notice DA 01-406 (includes Fact Sheet attachment).

Interoperability Spectrum: Taken in part from the FCC Web Sight:
http://wireless.fcc.gov/publicsafety/700MHz/interop.html#qa

FAQ

What is it, how much is there, and who will administer it?

Interoperability is the ability of different governmental agencies to communicate across jurisdictions and with each other. The FCC designated approximately 10 percent (2.6 MHz) of the 700 MHz public safety spectrum for nationwide interoperable communications. **The FCC determined that administration of the Interoperability channels should occur at the state level either by a State Interoperability Executive Committee (SIEC) or an existing equivalent agency.**

In Washington State, Governor Locke applied for licenses for both the state frequencies and interoperability frequencies. In the application, Governor Locke stated that the Washington SIEC would serve as stewards for this new spectrum.

Why should the administrative and technical oversight of operations of the Interoperability spectrum be performed at the state level?

State-level organizations are usually in control at large-scale events and disasters or multi-agency incidents. **Because of this central role states play in managing emergency communications, they are best suited for administering the Interoperability channels. Further, state-level control will promote safety of life and property through seamless, coordinated communications on the**

Interoperability channels. Also, states are usually in the best position to coordinate with Federal Government emergency agencies.

Must a state create a SIEC to manage the Interoperability spectrum?

No. Although the Commission supports the creation of SIECs, some states already have a mechanism in place that is the equivalent of an SIEC that could administer the Interoperability channels. In such cases, requiring a SIEC would be a duplication of resources and overly burdensome for the states.

Must a state agree to manage the Interoperability Spectrum?

No. The Commission recognized that certain states might be unable or unwilling to perform these administrative functions. If a SIEC or other state agency elects not to oversee the administration of the state's Interoperability channels, the Regional Planning Committee will assume this responsibility.

If a state declines to administer the Interoperability channels in a situation where more than one RPC provides coverage to the state, then the state must decide which RPC will administer the Interoperability channels. Further, the relevant RPC(s) will have primary responsibility and authority over these channels. Under this scenario, the RPC will develop the interoperability plan, review applications for base stations, and provide pre-coordination technical review.

Washington State by virtue of Governor Locke's application to the FCC has the SIEC accepting this responsibility.

What are the responsibilities of the SIEC or the entity administering the Interoperability Spectrum?

The first responsibility is to develop an interoperability plan. It would decide who will hold the license for the Interoperability spectrum as well as resolve licensing issues. Other responsibilities involved in administering the Interoperability channels would include the creation and oversight of incident response protocols, creation of chains of command for incident response and reporting, and executing Memoranda of Understanding and Sharing Agreements.

Who will hold licenses for the Interoperability channels?

A state or state level agency may be the licensee for all stations operating on the Interoperability channels or it may approve other eligible public safety entities to be licensees. A state could delegate the approval process for Interoperability channels to another entity, such as a regional planning committee. A state-level agency or organization responsible for administering state emergency communications would approve applications for Interoperability spectrum.

If a state decides it will be the sole licensee on the Interoperability channels, the state will file the necessary FCC applications for each base station, following the normal application process, including frequency coordination. If a state's interoperability plan authorizes a base station in a particular county with the license to be held by that county, the county will file the necessary FCC application. Finally, if the state plan contemplates using the Interoperability channels only for mobile to

mobile communications, no applications would be filed with the Commission, because mobile units will be blanket licensed.

The State of Washington holds this license. The spectrum is to be managed by the SIEC.

Is state administration of Interoperability channels the same option as the state license?

No. These are two separate options; however, the filing deadline is the same date, December 31, 2001.

This web page refers to state administration of the 2.6 megahertz of Public Safety 700 megahertz band spectrum that the FCC designated for nationwide interoperability communications.

The State license is a statewide geographic area license for up to 2.4 megahertz of the Public Safety 700 megahertz band. The governor of each sate, or his/her designee, is authorized to apply for a state license on behalf of the state.

Return to Top

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The National Coordination Committee, an advisory group to the FCC made recommendations to the Commission regarding the jurisdictions of SIECs

http://wireless.fcc.gov/publicsafety/ncc/ncc_releases/KW_Lttr_Rec.doc

Highlighted areas have been done by staff to SIEC.

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December 19, 2002

The Honorable Michael Powell
Chairman
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

REF: WT Docket No. 96-86

Dear Mr. Chairman:

At its September, 2002, meeting at Commission headquarters, the Public Safety National Coordination Committee (NCC) reached consensus on three sets of recommendations to be forwarded to the Commission. These recommendations concern: (1) technical and administrative standards for VHF and UHF narrowband interoperability channels; (2) Commission support for the development of a nationwide Incident Command System and (3) the designation of specific 700 MHz public safety band wideband 50 kHz data channels that may be aggregated to permit use of 100 kHz and 150 kHz bandwidths. Aggregation would be prohibited on other designated wideband data channels. I am pleased to report this consensus and to forward the NCC's recommendations[1] with the request that they be reflected in future Commission rules.

By way of background, the Commission has designated five VHF and four UHF channel pairs for interoperability use, nationwide.[2] Most VHF and UHF analog FM public safety radios include the *Continuous Tone Coded Squelch System* (CTCSS) feature. When this system is in use, each radio "listens" for the CTCSS tone[3] transmitted by its base station, portable, or mobile radio. If that tone is

[1] This letter supercedes a similar letter dated November 12, 2002, and incorporates revised recommendations made by the NCC Steering Committee at the NCC meeting on November 22, 2002, in Brooklyn, New York. The reasons for the revisions are set out in the cover letter transmitting this letter.

[2] The VHF interoperability channels are 151.1375 MHz, 154.4525 MHz, 155.7525 MHz, 158.7375 M Hz and 159.4725 MHz. The UHF interoperability channels are 453/458.2125 MHz, 453/458.4625 MHz, 453/458.7125 MHz and 453/458.8625 MHz. In addition, VHF channel pair 157.250/161.850 MHz is dedicated to interoperability use in thirty-three inland VHF Public Coast areas. VHF channel pair 157.225/161.825 MHz is dedicated to interoperability use in twenty-two such areas; and VHF channel pair 157.275/161.875 MHz is dedicated to interoperability use in eleven such areas. There are also five interoperability channels in the 800 MHz public safety "NPSPAC" band (821-824 MHz/866-869 MHz).

[3] The "tones" are low frequency (67.0 Hz to 254.1 Hz) and sub-audible, *i.e.* they cannot be heard by the user of the radio. Different manufacturers' products have proprietary CTCSS names such as PL (for "Private Line") and Channel Guard. However, all such products conform to a common CTCSS standard such that one manufacturer's radio can activate the CTCSS feature of another manufacturer's radio and vice-versa. CTCSS can also be used within a public safety system for selective addressing of radios. For example, in a given radio system, the radios

present, the audio portion of the radio is activated and the user hears the communication directed to him or her. However, other transmissions on the same frequency, *e.g.* transmissions directed to a user employing a different CTCSS tone or transmissions lacking a CTCSS tone are not heard[4] -- the radio is muted or "squelched."

In order to interoperate, VHF and UHF analog FM public safety radios operating on the VHF and UHF interoperability channels should be capable of using a known, specified, common CTCSS tone. Accordingly, to facilitate interoperability, the NCC recommends that the Commission adopt a rule establishing 156.7 Hz as the nationwide uniform UHF and VHF CTCSS tone[5] and that the Commission require that all analog radios that are capable of operating on the VHF or UHF interoperability channels are capable of using the 156.7 Hz CTCSS tone. However, the NCC recommends against any rule that would mandate that all communications on the VHF and UHF interoperability channels must be conducted using CTCSS tone 156.7 Hz. There may be good reason for using a different tone or tones at the scene of an incident. For example, a communications official should be able to elect use of CTCSS tones other than 156.7 Hz in order to implement selective addressing of on-scene radios.

Somewhat different interoperability considerations apply to digital operation on the VHF and UHF interoperability channels. Because there are various proprietary and incompatible digital technologies that can be used in the public safety VHF and UHF bands, digital interoperability cannot be assured without specifying a common digital standard for the VHF and UHF interoperability channels. Accordingly, to ensure that digital systems operating on the VHF and UHF interoperability channels are compatible, the NCC recommends that the Commission adopt a rule stating, in substance, that if a digital mode of operation is used on the VHF or UHF interoperability channels, it must conform to the ANSI-102/Project 25 standard. This standard currently is incorporated by reference in the rules governing the interoperability channels in the 700 MHz public safety band.[6]

The ANSI 102/Project 25 standard uses Network Access Codes (NAC) that are functionally similar to the CTCSS tones discussed above. Accordingly, the NCC recommends that the Commission adopt a rule establishing NAC $293 as the nationwide uniform VHF and UHF interoperability channel for digital systems. However, the NCC recommends against the Commission mandating that all digital communication on theVHF and UHF interoperability channels must be conducted using NAC $293. As noted above, good reason exists for the use of other codes in certain circumstances, *e.g.* communication officials may elect different codes to accomplish selective addressing of radios.

Currently, State Interoperability Executive Committees (SIECs), or similar governmental entities administer the interoperability channels in the 700 MHz public safety band.[7] The NCC believes that the

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used by police might be activated by a 103.5 Hz tone and the radios used by firefighters by a 162.2 Hz tone.

[4] This does not imply that the radio is immune to interference from co-channel stations. Such stations can interfere with reception when the radio is unmuted, can prevent the radio from receiving the desired signal or, if employing the same CTCSS tone as the radio, can cause it to unmute.

[5] The 156.7 Hz tone was selected as a nationwide standard in the NPSPAC Final Report. Its use is required when CTCSS tones are employed on the 800 MHz mutual aid channels. *See* Nebraska Region Public Safety Plan, GEN Docket No. 89-608, *Order*, 5 FCC Rcd. 2457 (1990).

[6] *See* 47 C.F.R. § 90.548.

[7] Most states have formed SIECs or their functional equivalents. In states that have elected not to form an SIEC or equivalent, the responsibility for administering the 700 MHz interoperability channels falls to the 700 MHz Regional Planning Committee(s) that include a given state within their boundaries. *See* 700 MHz Public Safety Band – Announcement of Updates of Interoperability Spectrum Administration Decisions, WT Docket 96-86, *Public Notice*, DA 02-2142, rel. Sept. 5, 2002.

functions performed by these entities are also critical to optimum use of all interoperability channels and suggested that the jurisdiction of these entities be extended to encompass the 800 MHz mutual aid channels and the VHF and UHF public safety interoperability channels. However, after review of this matter, I am referring it back to the NCC Steering Committee in the interest of developing a more complete record on how this extended jurisdiction would work in practice.

The NCC believes that lack of a nationally accepted Incident Command System (ICS) undercuts the functionality of the channels that the Commission has designated for interoperability use. Accordingly, the NCC encourages the Commission to voice its support for development of such an ICS.

The NCC has been working with the Telecommunications Industries Association (TIA) to develop a standard for the 700 MHz wideband data interoperability channels. TIA has chosen the Scalable Adaptive Modulation (SAM) technology and is in the process of developing a final suite of open standards for that technology. Based on the periodic reports given to the NCC by TIA, the NCC endorses the choice of the SAM standard. However, although the technology has been chosen by TIA, TIA has not completed work on all of the documents necessary to define the standard. An NCC recommendation for a wideband data interoperability standard will be made at the conclusion of TIA's work. However, the NCC now knows, based on TIA's work to date, that 50 kHz is the nominal channel bandwidth for the SAM system. That bandwidth can be accommodated on the wideband data interoperability channels currently in the Rules.[8] However, the NCC envisions that certain applications may require wider bandwidth, up to the 150 kHz limit imposed by the Rules.[9] Accordingly, the NCC recommends that the Commission adopt rules which permit specified multiple wideband data interoperability channels to be aggregated to derive 100 kHz and 150 kHz bandwidths; but that such aggregated use of channels be secondary to systems using 50 kHz bandwidth. Specifically, the NCC recommends that aggregation (up to 150 kHz) be permitted on all but the following channels, which should be restricted to 50 kHz-only operation: Channels 46, 47, 48, 73, 74 and 75. Channels 46, 48, 73 and 75 should be designated as 50 kHz-only nationwide common channels. The wideband data interoperability channels may be used on a local or regional basis according to SIEC plans. The NCC recommends that the channels, above, that cannot be aggregated should be the first channels to be included in an SIEC plan.

I am pleased to report that the NCC is nearing completion of the tasks set out in its Charter. However, as noted above, an NCC recommendation on a wideband data standard must await final action by TIA. Accordingly, it may be necessary to request a short extension of the NCC's chartered term which otherwise would expire on February 25, 2003.

Respectfully submitted,

/s/ Kathleen M. H. Wallman

Kathleen M. H. Wallman
Chair, National Coordination Committee

Copies:
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[8] *See* 47 C.F.R. § 90.531(c)(1).

[9] *See* 47 C.F.R. § 90.531(d)(2).